

# Aviation News

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**Conference Speakers:** Among the discussion leaders at the Joint Air Transport Users Conference last week in Washington were, left to right, E. Merritt Anderson, owner of Anderson Air Activities, Milwaukee, charter operator; Harry R. Playford, president, U. S. Air Lines, Inc., St. Petersburg, Fla., contract freight operator; Joseph J. Mitchener, Jr., executive director, Feeder Airlines Association, Washington, D. C.; Bowman R. Otto, president, Feeder Airlines Association and president, Otto Airlines, Inc., Newark, N. J., intrastate operator; and Albert L. Zimmerly, president, Empire Airlines, Inc., Lewiston, Idaho, intrastate operator. (Story on Page 7)

## Rockets Exceed 43.5-Mile Altitude In Army Tests

16-ft. experimental models designed by Caltech laboratory believed most efficient in world. . .Page 9

## Considerable Aero Stocks Sold By Firm Officials

SEC compilation shows liquidation was broad in aviation group in December. . . . .Page 16



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THE AVIATION NEWS

## Washington Observer



**AAF REORGANIZATION**—An efficient air force is being as proposed by Gen. Spaatz (story on Page 18) is a prime necessity in an unsettled post-war world, a situation which lends itself to Congress recognition. But there still are too few trained legislators who realize the importance of such an air force overhaul with a broad program of research and development. The program outlined by Gen. Spaatz will require a suitable appropriation, but insurance provisions sometimes are costly too, although valuable.

**ECONOMY VIEW**—Chairman CANNON (D., Mo.) of the House Appropriations Committee stated his views freely on expenditures during an Air Force officers' hearing. He said that if we are going to make a mistake we would rather, in view of the present state of federal finances, make the mistake of taking too much money away than of leaving too much money in, —a view regarded as more progressive quarters as extremely shortsighted, particularly so far as aviation is concerned.

**PROGRESS**—Gen. Spaatz proposed for an Air University is indicative of a changed and in this case far-sighted view of things to come. The Air University would be a postgraduate school patterned somewhat after the Staff and Command School and the Army War College and would train junior officers after West Point. The task of the postwar AAF, difficult as it is, will be more so, in the view of many Washington observers, unless the Air Force is on a constant basis with the Army Ground Force and the Navy. If there

is to be a separate Air Force, then there would have to be more than a postgraduate school—there would have to be a West Point of the Air.

**SENATOR AND THE GENERAL**—As expected, Sen. ELLIOT D. THOMAS' *American Magazine* blast at the AAF produced repercussions at the Pentagon Building. In a special statement, Gen. Spaatz said he, as a war during the war, and not as a planner of equipment, was extremely satisfied. What makes the Thomas article important is his position as chairman of the Senate Military Affairs Committee, with which Spaatz and the AAF will have to deal. Thomas' point that the equipment planning of the AAF pointed to the need of civilian authority over the phase of AAF action, is he believed to be tied in with the proposal for unification of the armed services. The argument has been advanced that a single commander of ground, air and sea forces would have too much power.

**AIRPORT BILL**—It is precisely certain that the long-pending Federal-aid airport legislation which has been in a House and Senate conference committee for months will be approved shortly and returned to both houses for final treatment. Informal agreement has been reached on the House method of granting funds to any public agency, rather than the Senate formula of channeling funds to both states and municipalities. Senator OWEN BROWN (R., Me.), dig-bird from advocate, may oppose the conference report on the floor, but will be defeated. Sen. FRED MCCARRAN (D., Nev.) and Rep. CLARENCE LEE (D., Calif.), members of the legislation, now are engaged in working out minor differences in their respective bills.



One of the Army-Caltech rockets which have soared more than 42.5 miles. (Story on Page 8)

**ACTION**  
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**Periparturient mastitis.** In lactating dairy cattle, the incidence of mastitis is highest during the periparturient period. The incidence of mastitis is highest during the periparturient period, and the incidence of mastitis is highest during the periparturient period.

Volume 5, Number 40

[illegible]

#### CAA Defends Repair Policy

In reply to criticism of its plans to win-house a five-year supply of parts for and to the repair work on its B1 aircraft obtained from American States CAA states its program will save the taxpayer about \$A million. The program will be "rebuttal" the Aeronautical Training Society, leading opponent of the plan, declares that all of the claimed saving of \$1,544,000 per year except \$563,000 is based on the fact that the government department has not taken into account the replacement and parts. A CAA spokesman insists the saving of \$363,000 on a pair and maintenance is based on Army and Navy service retards for the types of aircraft concerned, and that the cost of the parts is not included. If the work on the B1 aircraft would be done by private contractors, it would cost the government more,

than \$30,000 per year. This does not mean that in the past CAA has been paying the industry more than \$30,000 per year as the planes now involved are different. Previous work was let on contract by regional offices and CAA has no coordinated records on the cost. CAA also points out that it will continue to contract with the industry for major engine overhauls. ATR, however, does not consider this significant as all the aircraft are in new or partially new condition.

### Bowman Designs NATA Post

Leslie H. Bowman, of Auburn, Maine Co., Ft. Worth, has resigned as chairman of the board of the National Aviation Trades Association. This is the second resignation of a top NATA official in three weeks. Recently Howard having quit as a vice-president and director. Both will continue as members of NATA. With the latest attempt to revive NATA (Airlines News, Feb. 18) lingering, there are reports pointing toward the formation of a new trade group to represent aviation distributors.

Conair Films, Feedlines

**Consolidated-Vultee Aircraft Corp.** will announce about April 1 its plans to enter the short-haul transport manufacturing field. Convair has begun design studies on a 100-seat plane, but passenger capacity has not yet been decided.



\* Acceptances by the services in February of 175 stripplans involved 110 Army and 24 Navy craft, with a total installed inventory of 1,034 600 lbs. January acceptance of 100 600-lb. stripplans was 1,116,200 lbs. Army models comprised 7 B-29, 1 North American F-82, 3 C-47, 10 F-4U, 10 F-51, 1 Lockheed P-38, 1 Fairchild C-47A, 1 C-47, 1 C-46, 1 C-46G, 1 Stearman, 8 A-1, 1 P-1, 1 P-2, 1 P-3, 1 P-4, 1 P-5, 1 P-6, 1 P-7, 1 P-8, 1 P-9, 1 P-10, 1 P-11, 1 P-12, 1 P-13, 1 P-14, 1 P-15, 1 P-16, 1 P-17, 1 P-18, 1 P-19, 1 P-20, 1 P-21, 1 P-22, 1 P-23, 1 P-24, 1 P-25, 1 P-26, 1 P-27, 1 P-28, 1 P-29, 1 P-30, 1 P-31, 1 P-32, 1 P-33, 1 P-34, 1 P-35, 1 P-36, 1 P-37, 1 P-38, 1 P-39, 1 P-40, 1 P-41, 1 P-42, 1 P-43, 1 P-44, 1 P-45, 1 P-46, 1 P-47, 1 P-48, 1 P-49, 1 P-50, 1 P-51, 1 P-52, 1 P-53, 1 P-54, 1 P-55, 1 P-56, 1 P-57, 1 P-58, 1 P-59, 1 P-60, 1 P-61, 1 P-62, 1 P-63, 1 P-64, 1 P-65, 1 P-66, 1 P-67, 1 P-68, 1 P-69, 1 P-70, 1 P-71, 1 P-72, 1 P-73, 1 P-74, 1 P-75, 1 P-76, 1 P-77, 1 P-78, 1 P-79, 1 P-80, 1 P-81, 1 P-82, 1 P-83, 1 P-84, 1 P-85, 1 P-86, 1 P-87, 1 P-88, 1 P-89, 1 P-90, 1 P-91, 1 P-92, 1 P-93, 1 P-94, 1 P-95, 1 P-96, 1 P-97, 1 P-98, 1 P-99, 1 P-100, 1 P-101, 1 P-102, 1 P-103, 1 P-104, 1 P-105, 1 P-106, 1 P-107, 1 P-108, 1 P-109, 1 P-110, 1 P-111, 1 P-112, 1 P-113, 1 P-114, 1 P-115, 1 P-116, 1 P-117, 1 P-118, 1 P-119, 1 P-120, 1 P-121, 1 P-122, 1 P-123, 1 P-124, 1 P-125, 1 P-126, 1 P-127, 1 P-128, 1 P-129, 1 P-130, 1 P-131, 1 P-132, 1 P-133, 1 P-134, 1 P-135, 1 P-136, 1 P-137, 1 P-138, 1 P-139, 1 P-140, 1 P-141, 1 P-142, 1 P-143, 1 P-144, 1 P-145, 1 P-146, 1 P-147, 1 P-148, 1 P-149, 1 P-150, 1 P-151, 1 P-152, 1 P-153, 1 P-154, 1 P-155, 1 P-156, 1 P-157, 1 P-158, 1 P-159, 1 P-160, 1 P-161, 1 P-162, 1 P-163, 1 P-164, 1 P-165, 1 P-166, 1 P-167, 1 P-168, 1 P-169, 1 P-170, 1 P-171, 1 P-172, 1 P-173, 1 P-174, 1 P-175, 1 P-176, 1 P-177, 1 P-178, 1 P-179, 1 P-180, 1 P-181, 1 P-182, 1 P-183, 1 P-184, 1 P-185, 1 P-186, 1 P-187, 1 P-188, 1 P-189, 1 P-190, 1 P-191, 1 P-192, 1 P-193, 1 P-194, 1 P-195, 1 P-196, 1 P-197, 1 P-198, 1 P-199, 1 P-200, 1 P-201, 1 P-202, 1 P-203, 1 P-204, 1 P-205, 1 P-206, 1 P-207, 1 P-208, 1 P-209, 1 P-210, 1 P-211, 1 P-212, 1 P-213, 1 P-214, 1 P-215, 1 P-216, 1 P-217, 1 P-218, 1 P-219, 1 P-220, 1 P-221, 1 P-222, 1 P-223, 1 P-224, 1 P-225, 1 P-226, 1 P-227, 1 P-228, 1 P-229, 1 P-230, 1 P-231, 1 P-232, 1 P-233, 1 P-234, 1 P-235, 1 P-236, 1 P-237, 1 P-238, 1 P-239, 1 P-240, 1 P-241, 1 P-242, 1 P-243, 1 P-244, 1 P-245, 1 P-246, 1 P-247, 1 P-248, 1 P-249, 1 P-250, 1 P-251, 1 P-252, 1 P-253, 1 P-254, 1 P-255, 1 P-256, 1 P-257, 1 P-258, 1 P-259, 1 P-260, 1 P-261, 1 P-262, 1 P-263, 1 P-264, 1 P-265, 1 P-266, 1 P-267, 1 P-268, 1 P-269, 1 P-270, 1 P-271, 1 P-272, 1 P-273, 1 P-274, 1 P-275, 1 P-276, 1 P-277, 1 P-278, 1 P-279, 1 P-280, 1 P-281, 1 P-282, 1 P-283, 1 P-284, 1 P-285, 1 P-286, 1 P-287, 1 P-288, 1 P-289, 1 P-290, 1 P-291, 1 P-292, 1 P-293, 1 P-294, 1 P-295, 1 P-296, 1 P-297, 1 P-298, 1 P-299, 1 P-300, 1 P-301, 1 P-302, 1 P-303, 1 P-304, 1 P-305, 1 P-306, 1 P-307, 1 P-308, 1 P-309, 1 P-310, 1 P-311, 1 P-312, 1 P-313, 1 P-314, 1 P-315, 1 P-316, 1 P-317, 1 P-318, 1 P-319, 1 P-320, 1 P-321, 1 P-322, 1 P-323, 1 P-324, 1 P-325, 1 P-326, 1 P-327, 1 P-328, 1 P-329, 1 P-330, 1 P-331, 1 P-332, 1 P-333, 1 P-334, 1 P-335, 1 P-336, 1 P-337, 1 P-338, 1 P-339, 1 P-340, 1 P-341, 1 P-342, 1 P-343, 1 P-344, 1 P-345, 1 P-346, 1 P-347, 1 P-348, 1 P-349, 1 P-350, 1 P-351, 1 P-352, 1 P-353, 1 P-354, 1 P-355, 1 P-356, 1 P-357, 1 P-358, 1 P-359, 1 P-360, 1 P-361, 1 P-362, 1 P-363, 1 P-364, 1 P-365, 1 P-366, 1 P-367, 1 P-368, 1 P-369, 1 P-370, 1 P-371, 1 P-372, 1 P-373, 1 P-374, 1 P-375, 1 P-376, 1 P-377, 1 P-378, 1 P-379, 1 P-380, 1 P-381, 1 P-382, 1 P-383, 1 P-384, 1 P-385, 1 P-386, 1 P-387, 1 P-388, 1 P-389, 1 P-390, 1 P-391, 1 P-392, 1 P-393, 1 P-394, 1 P-395, 1 P-396, 1 P-397, 1 P-398, 1 P-399, 1 P-400, 1 P-401, 1 P-402, 1 P-403, 1 P-404, 1 P-405, 1 P-406, 1 P-407, 1 P-408, 1 P-409, 1 P-410, 1 P-411, 1 P-412, 1 P-413, 1 P-414, 1 P-415, 1 P-416, 1 P-417, 1 P-418, 1 P-419, 1 P-420, 1 P-421, 1 P-422, 1 P-423, 1 P-424, 1 P-425, 1 P-426, 1 P-427, 1 P-428, 1 P-429, 1 P-430, 1 P-431, 1 P-432, 1 P-433, 1 P-434, 1 P-435, 1 P-436, 1 P-437, 1 P-438, 1 P-439, 1 P-440, 1 P-441, 1 P-442, 1 P-443, 1 P-444, 1 P-445, 1 P-446, 1 P-447, 1 P-448, 1 P-449, 1 P-450, 1 P-451, 1 P-452, 1 P-453, 1 P-454, 1 P-455, 1 P-456, 1 P-457, 1 P-458, 1 P-459, 1 P-460, 1 P-461, 1 P-462, 1 P-463, 1 P-464, 1 P-465, 1 P-466, 1 P-467, 1 P-468, 1 P-469, 1 P-470, 1 P-471, 1 P-472, 1 P-473, 1 P-474, 1 P-475, 1 P-476, 1 P-477, 1 P-478, 1 P-479, 1 P-480, 1 P-481, 1 P-482, 1 P-483, 1 P-484, 1 P-485, 1 P-486, 1 P-487, 1 P-488, 1 P-489, 1 P-490, 1 P-491, 1 P-492, 1 P-493, 1 P-494, 1 P-495, 1 P-496, 1 P-497, 1 P-498, 1 P-499, 1 P-500, 1 P-501, 1 P-502, 1 P-503, 1 P-504, 1

► Australian immigration authorities issued some indications that the Navy will accept refugees to allow it to supply all Laidlaw's *Lozels*. At the time, however, the government's disposal agency had accepted all of only 20 of the 100 surplus places all this model, and it was expected that the last one would be bought almost as soon as they are released. While the demand for all two-engine surplus aircraft continues heavy, the *Lozels* has been popular for two decades. Both as a 14 passenger transport and as an executive plane. A *Lozell* bought from surplus for \$22,800 to \$25,900 can be modified for airline use and will carry 12 passengers at 150 mph. Some aircraft companies from \$100,000 to \$118,000 or more, and include such features as cabinetry trays, dual fuel injectors, and refrigerated liquor cabinets.

► Howard Hughes has purchased for \$850,560 the 298,000 sq. ft. jet conditional government-owned building at which his past flying base is being assembled. The purchase from RMC was consummated by his Hughes Tool Co. of El Paso, Texas. Hughes will do with the massive structure, which has a massive ground clearance of 714 ft. over the surrounding topography on the Waco, Texas, base, he might convert the building to a steel and/or for other uses, although there is no doubt Hughes doubts this. He believes he will adapt the flying base hangar and adjacent facilities to one or more industrial purposes.

Among other KIC aircraft facility sales and leases last week, was the leasing for five years of two assembly buildings of the sprawling Douglas Long Beach plant to Kanes-Proser Corp. as an auto assembly plant. The lease is on a sliding scale, rising to maximum of approximately \$150,000 a year.

■ Civil Aeronautics Administration regional offices have been instructed to review all instrument approach procedures, and it appears likely that they will increase initial and final approach altitudes to conform with the IATCB formula.

► Prominent reports in reliable financial circles indicate that the 75,000 shares of American Airlines stock recently disposed of by American Corp. were sold to Aaron Carter, a director of American, although he has not yet filed such a report with the SEC.

Coarse, Marlin and other centropomids are of course jet thrusters and are confused with dumping of a critical mass problem. These who have flown in arbitrary places along exhaust jet stacks produce the same level extremely smothering. The present plan of leading the exhaust through curving, or ducts, to the trailing edge of the wing does not appear to be a solution. Some considerations have been given by design engineers to a jet pipe extension which will trail the wing at an angle to the span and spread based on jet thrust is so important. Commercially, on the basis of the present situation, the wing should be able to sustain a constant

►Fischel has decided against production of a passenger version of its well known C 82 Picket, for an indefinite period.

the purchase of 3 supplies aircraft from the local supply at Stillwater, Okla. It was chartered by Paul Mann, Los Angeles chapter operator, by agreement of the Mountain-Belt Supply Company, Inc. Still well operated by the Still water chapter here. The Federal all flight instructors and airframe mechanics, scavenged from the unfileable planes purchased, and will market flyable bombers and fighters to those inclined to buy them. Associated with Mann are J. W. Henth of Muskogee, Tex., hog rancher, and L. B. Haggard, Muskogee attorney.



## What Airline Executives Say About the New Martin Transports



C. Kelly Allen, President  
Pennsylvania Central Airlines

"I'd expect you to find out everything and everything else, after you have seen and talked and discussed just the way for better days."



Capt. John H. Anderson, President  
and General Manager, Eastern Air Lines

"We suppose have made a long and close study of plans being offered by you—Martin Aircraft Co., manufacturers and they are convinced that Martin had designed the line of aircraft."



De Loria Parnum, President  
Chicago and Southern Air Lines

"The perfect airplane for our type of operation. Deliveries of the Martin 202 in 1947 will enable us to replace the DC-3 with a single engine air service because our whole line runs."



T. B. Francis, President  
Eastern Airways

"Considering our policy of maintaining the best and latest equipment available in a one model airline, we purchased Martin transports after long and thorough study of all entries in the 20-40 passenger plane unit."



W. A. Peterson, President  
United Air Lines

"will result in our having a line providing the same comfort and speed as our two-in-one service as well as being in line in regard to standard size, length, range, and flight."

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## Uncertificated Operators Discuss Steps Necessary to Expansion

75 leading figures in field examine prospects at Joint Airport Users Conference, sponsored by National Aeronautic Association; see growth despite current confusion and problems.

By WILLIAM KROGER

Despite confusion as to their exact legal status and a multiplicity of problems inherent in a young industry, operators of non-scheduled, operators of contract, non-scheduled and intrastate air services are themselves in line for the medium through which will be obtained the long-desired goal of making every available community by air.

At the Joint Air Transport Users Conference last week in Washington—the first chance for general expansion of the uncertificated operators thinking since the CAA's halting on regulations of non-scheduled aviation—about 75 outstanding figures in the field discussed objectives and pointed the way toward their realization. The conference was sponsored by the National Aeronautic Association.

**Thinking On New Equipment.**—Like the truckline carriers, uncertificated operators are banking on new flying equipment to reduce operational costs. Objective, however, is not competition with the truck line. Expansion of the air network it was pointed out, would in fact be an auxiliary to truck carriers.

Charter operators, for example, must compete with scheduled air transport. It was stated by E. McCall Anderson, owner of Anderson Air Enterprises, Milwaukee. In his state, he said, the average flood-borne operator runs a four-place single-engine aircraft at an average charge of 20 cents a mile. With new, two-engine equipment and maximum utilization of about 1,300 hours per year, Anderson expects to reduce that charge.

**Looks Have Many Angles.**—However, reduction of direct flying costs in itself will not bring charges down to a level competitive with bus and rail fares. It was emphasized by several speakers, expressed the belief that this year alone may be as many as 12 feeder lines established by CAA.

**Needs Outlets.**—On the basis of his extensive experience in the operation of a successful short-haul executive airline, Ramsey highlighted its financial aspects. "The smallest short-haul airline will need a minimum capital of \$500,000 in finance and operate," he stated, adding that an operator will need a fleet of 100-150-passenger planes. Such plans, operating 9 hours daily, should develop passenger

early president, Eugene Airline, Inc. Lewiston, Idaho, who adds in disavowing that some commentators expect to make airport charges that will pay for their fields. He feels there is justification for granting free use of airports to short-haul carriers until such time as they are on their feet financially.

Albert F. Betel, Washington, attorney for several carriers, expressed the belief that this year alone may be as many as 12 feeder lines established by CAA.

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### FREE-FLIGHT TUNNEL:

An unusual airplane model with a fixed auxiliary aerial projecting ahead of the leading edge of the wing, is shown under test in the free-flight tunnel at NACA's Langley Field, Va., laboratory. The free-flight tunnel, only one of its kind, has a 12-ft. rectangular test section which permits within a 60-ft. sphere, permitting the remotely-controlled models to fly freely under their own power in a wide range of glide or climb angles. The model is controlled by a "pilot," shown standing in "cockpit" with wind-tunnel operator. The tunnel is related within the sphere under control of the operator, at right.

between 25 and 48 cents per airplane mile.

The overall expense would not exceed 48 cents per mile, which would leave a gap of from 25 to 10 cents per mile to be made up by mail pay in order to give a profit of about 5 cents per airplane mile.

**Mail Pay Seen Necessary**—Mail pay may be necessary to get faster laws over the mail bonus in the opinion of Joseph J. Michener, Jr., executive director, Pacific Airlines Association.

"Such an expenditure would not be without precedent," he said, "even though many people seem to look with horror upon anything which involves governmental subsidy." He stressed that airmail now returns a profit to the Post Office and his part of the total expenditure on airmail.

**Redwood Stream Safety**—In the face of a warning from Joseph B. Duckworth, director of CAA's Safety Bureau that it is the obligation of every pilot and sponsor, and not of the government, to assume primary responsibility for safety, operators agreed that the safety laws prohibit a more important to charter services than airlines.

Michener stated that a charter operator who has even a minor accident—resulting in no personal injury—as his own field may drive away all business for as long as six months.

**Cites Accident Trend**—Duckworth

declared that investigation showed a trend toward operational accidents. These chiefly involve daily maintenance and operational problems. In the case of the latter, he underlined the importance of flight planning.

While there was no expressed opposition to the proposed Part 42 of the Civil Air Regulations which would lay down safety rules for non-scheduled firms, the dis-



#### DC-3 JATO TESTS

N. A. Thomas (standing), chief of CAA's North Region flight engineering and factory inspection division, and E. E. Nelson, sales manager and chief of flight of Aerojet Engineering Corp., examine installation of the company's Jato rockets on the underside of a DC-3. Tested recently for CAA certification at Ontario, Calif., a Jato-equipped DC-3 cleared a 50-ft. altitude in 2,800 ft. with one engine out and (AVIATION NEWS, March 11)

#### Part 42 Action Due

Part 42 of the Civil Air Regulations—a safety regulation of non-scheduled carriers—will be promulgated by CAA without any further hearing or consultation of the industry, Joseph B. Duckworth, director of the Safety Bureau, told the Joint Air Transport Users Conference last week. Lack of personnel and the pressing need for the rules was the reason.

However, effective date probably will not be before summer. It will be perhaps a month before Part 42 will go to the Board for action, and the Board will allow sufficient time between adoption and effective date to give the industry a chance to register comments and to give CAA time to set up machinery to administer the regulations. It is extremely unlikely that the scheduled two or three engine requirement will be adopted.

declared that investigation showed a trend toward operational accidents. These chiefly involve daily maintenance and operational problems. In the case of the latter, he underlined the importance of flight planning.

While there was no expressed opposition to the proposed Part 42 of the Civil Air Regulations which would lay down safety rules for non-scheduled firms, the dis-

posal of economic regulations that has been put forward before was rejected.

**Bargain Opposes Plan**—George Borg, assistant to the assistant secretary of Commerce for transportation, said this type of control and cited the history of the track and bus industry in point out how economic regulation, even against strategic unscheduled airlines.

However, Borg was called for support for passage of H. R. 3423, a measure of Ray Clarence Lee, D., Calif., which would limit all flying including aviation, under present regulation. Anderson declared he feels that the Federal government should supervise state governments in air regulation. Giving several court cases bearing on interstate commerce, Anderson declared in favor of the view that no interstate operator can escape the application of the commerce clause of the U. S. Constitution.

**Control System Seen**—Although there are perhaps as many as 500 air service operators functioning today, it appears that when the proposed plan is put into effect, only business finally left it may be in the hands of a relatively few large contract air companies.

Harry Playford, president of U. S. Air Lines, Inc., St. Petersburg, Fla., safety control brought attention—explained why under operation. Maintenance is paramount in this type of operation in order to provide regularity of service, he said. The contract carrier cannot wait for overhaul and other type of servicing.

Playford stated his own company is contemplating the establishment of an expense overhaul and maintenance base which would cost between \$150,000 and \$200,000.

#### American-MCA Merger Opposed By Goodkind

Control of Mid-Continent Airlines by American Airlines would be in conflict with fundamental public policies of the Civil Aeronautics Act, according to CAA Public Counsel Louis W. Goodkind.

In a brief arguing denial of the proposed merger, Goodkind argued that the absorption would create a badly integrated combination of systems, cause a substantial diversion of traffic from other carriers and result in monopolization of Mid-Continent's North-South traffic to American's East-West schedules to the detriment of connections by competing lines.

## Altitudes of More Than 43.5 Miles Reached in Army Rocket Tests

Designed for Ordnance Department by Caltech Jet Laboratory head, 16-ft. experimental models probably are most efficient ever produced, give U. S. dominant research position

By SCHOLLER BANGS

Altitudes of "at least 330,000 ft." (43.5 miles) have been reached by slender 16-in. rockets designed for Army Ordnance by Dr. Frank J. Malina, acting director of the Jet Propulsion Laboratory of California Institute of Technology.

They probably are the most efficient projectiles of their type ever built and may be expected to give the United States a dominant position in upper atmosphere research.

**Performance Restricted**—How much higher the rockets may have gone above the altitude determined by radar tracking, is conjectured, and Ordnance officers must that details of performance and construction temporarily remain restricted.

Although the German V-2 rocket is credited with having reached an altitude of 60 miles in trajectory flight, the American rocket, by virtue of its comparatively small size and propellant load, may be considered to be a "stepping stone" toward rocket performance far exceeding the results obtained by other means.

**Specifications Given**—It weighs approximately 1,800 lbs., has a length of 18 ft. from its nozzle-pointed supersonic nose to truncated tail and is 12 in. in diameter. A liquid propellant, hydrazine and oxidizer, is used.

Under the amazing security code designative of "WAC Corporal" the project was initiated in 1946 and a number of the rockets were assembled by Douglas Aircraft Co. at Santa Monica, Calif. Flight tests all successful, were begun last summer at the Army Ordnance Department's White Sands Proving Ground at Las Cruces, N. M., which is under the command of Lt. Col. H. H. Turner.

All flights have been vertical from a tower launching track.

**Valued As Instrument Carrier**—Col. B. S. Mendel, Ordnance Department Inspector in Charge at Caltech and coordinator of the project, believes that the "WAC Corporal" rocket will have incalculable value as a future carrier of high altitude instruments now being developed

by the Signal Corps.

It offers for the first time a means for obtaining scientific data as the comparison of the upper atmosphere temperatures, pressure density, cosmic ray measurements, and even photographs, transmitted by laser atmosphere optical detection.

**Early Objectives Reached**—As technical director of "WAC Corporal," Dr. Malina sees in the rocket a realization of the early high-altitude objectives of the late Dr. Robert H. Goddard, whose experiments at Roswell, N. M., stimulated what previously had been only casual rocket research in this country.

As early as 1930, when Dr. Th. von Karman favored the possibilities of rocket research at Caltech, a group of his students set as a major objective the mission of a high-altitude instrument-carrying rocket for upper-atmosphere research.

**War Speeded Progress**—The expansion of this group in the developmental period were those of other rocket enthusiasts and with little guiding precedent and very limited financial means, progress was slow. Through a period of several years effort was concentrated on the testing of a multitude of solid and liquid propellants.

The War gave this research its needed stimulus, and under sponsorship of the Army Air Forces the Jet Propulsion Laboratory was organized at the California Institute of Technology by Dr. von Karman, Dr. C. S. Melick and Dr. Malina.



In Firing Position. A "WAC Corporal" rocket stands ready for flight in a firing tower. Standing beside the rocket is Dr. Frank J. Malina, technical director of the project and acting director of the Caltech Jet Propulsion Laboratory. The yellow control screen contains the rocket's propellant. (Another photo on Page 3.)

#### Agreement Sill Laggings on Cost-Plus Contracts

Although statements on termination war contracts showed a jump during January with 15,000 contracts involving \$2,769,360,890 settled—final agreement on cost-plus-fixed-fee contracts still laggard. The record of Contract Settlement, H. Chapman, then announced approximately 42,000 contracts still remain to be settled, but real claims have been filed against almost 17,000 of these.

**Cost-plus Settlements**—During the month, the War Department settled 16 cost-plus contracts with cumulative commitments of \$115,000,000, while the Navy settled five such commitments involving \$6,090,000. On the basis of the year-end report of OCS (Aviation News, Feb. 11) that would have 414 cost-plus contracts with commitments of about \$18,269,000,000 to be settled. It is estimated that the bulk of the cost-plus contracts were in the field of aeronautics.

## Spaatz Reorganizes AAF, Plans Combat-Ready Force-in-Being

Would be equipped with jet propelled aircraft as rapidly as possible; see funds and authority to maintain 400,000-man army as necessary for minimum need.

An Air Force-in-being of combat efficiency and equipped with jet propelled aircraft as rapidly as production will permit is the immediate goal of Gen. Carl A. Spaatz, new commander of the AAF.

Authority and funds to maintain a force of 400,000 men is seen by Gen. Spaatz as necessary for minimum needs. He told his first formal news conference last week that although rapid demobilization destroyed a large measure of our effectiveness, we are setting a goal of Jan. 1, 1945 to get whatever strength we are authorized in groups up to fighting efficiency. Under pressure this could be speeded up.

**Three Major Commands**—The reorganization program proposed by Gen. Spaatz would divide the AAF into three major combat commands: a Strategic Air Force under Gen. George C. Kenney, with headquarters at Andrews Field, near Washington; a Tactical Air Command under Lt. Gen. Harold G. Quigley, with headquarters at Langley Field and an Air Defense Command—led by Chief Constable Air Force—with headquarters at Mitchell Field under Lt. Gen. George C. Stratemeyer.

Emphasizing the importance with Gen. Spaatz attaches to the AAF's public relations and educational program was his appointment of Lt. Gen. Harold L. George as director of information. For this



Kenney

Quigley



Stratemeyer

George

time being Gen. George will emphasize as commander of the Air Transport Command, but a replacement will be named within a few weeks.

**CAF & Disbanded**—Disbandment of the Continental Air Force and its replacement by the Air Defense Command given the unit responsibility for air protection of the United States and coordination of continental air units including the Air Reserve and the Air National Guard Squadrons.

The reorganization calls for five supporting commands, all under AAF headquarters in Washington: **Air Materiel** headquarters at Wright Field under Lt. Gen. Nathan F. Twining;

**Air Training** headquarters at Randolph Field, La., under Lt. Gen. John J. Canine;

**Air Transport Command**, Washington, with Gen. George commanding responsibility;

**The Air University**, Maxwell Field, Ala., under Maj. Gen. M. S. Fairchild;

**Air Force Proving Ground**, Dayton, Ohio, under Maj. Gen. Donald Wilson.

The 14 air forces set up during the war will be kept in existence under several commands.

### '47 Navy Plane Construction To Total \$385,000,000

Construction of aircraft in the Navy's 1947 budget for the 1947 fiscal year totals \$385,000,000 as compared with \$347,735,390 authorized for the previous year and \$1,492,664,997 during the 1945 fiscal year.

The budget recommends \$100,000,000 for experimental and development work, as against \$142,254,500 for the same work a year ago and \$136,676,164 in 1945. Authorization and approval expenditures in the budget are estimated at \$100,000,000.

The budget recommends \$39,500,000 for the Naval Air Transport Service for aircraft and transport, and \$5,203,850 for 472 utility transports.

### Bell Helicopter Gets First Commercial Lease

First helicopter commercial lease has been issued by Bell Aircraft Co. at its new Model 47 two-place craft after exhaustive tests during which the helicopter exhibited an operating speed of 89 mph and a range of 200 miles.

Lafayette D. Bell, president of the company, said it would be some time before helicopters would be produced for the market but rather would be distributed for rescue work, mining and oil operations and to fill gaps in the normal service.

### New PT-23 Prices Set

New bid prices on surplus Fairchild PT-23 primary trainers, ranging from \$150 to \$175, were established last week by the War Assets Corp. There are 683 PT-23s in stock, most located at WAC depots at United City, Tenn., and Cape Girardeau, Mo.

## Dr. Hunsaker Elected Sperry Corp. Director

Monkey speed assistant to president as Dr. Hunsaker appointed to New York in AAF.

Sperry announced board appointments and Ryan and American named executive assistants last week.

Dr. Jerome C. Hunsaker, chairman of the National Advisory Committee for Aeronautics, has been elected a director of the Sperry Corp. in a meeting of Dr. Hunsaker's board of directors. Dr. Hunsaker also becomes a director at the Sperry subsidiary, Sperry Gyroscope Co., Inc., Ford Instrument Co., Inc., Veterans, Inc. and Wheeler Industries Corp. At the same time Edward S. Perry was elected president of the newly incorporated Co., Long Island City, succeeding Russell C. Ford, who has retired.

Dr. Hunsaker, aircraft engineer, has been appointed assistant to the president of the New York Aeronautics Co. His special assignment will be coordination of the overall engineering and experimental manufacturing departments. Hunsaker has replaced Ryan after an absence of 30 years. Since then he has been in charge of engineering for Northrop Aircraft, chief of production design for Glenn L. Martin Co., and engineering manager of Bell Aircraft Co.

Matthew E. Lohman has been named administrative assistant to Dr. Hunsaker, vice-president of American Airlines, who was named by the Office of Production Management and later was in the AAF where he worked with continental air bases for AAF and ATC.

## Veterans Leasing Van Nuys Center

Five Air Force veterans probably will be in full lease possession of the \$3,000,000 TWA Lockheed-Van Nuys aircraft modification center at Van Nuys, Calif. by the time this is printed.

They have organized an Aviation Maintenance Corp. and last week were prepared to sign final lease agreements with the Reconstruction Finance Corp. in Washington, D. C. RFC and War Assets Corp. had approved the deal and referred it to the Justice Department.

**Others Make Overhaul**—While there was the sole written bid for



LIFERATE PICKUP:

Latest adaptation of the human pickup developed for military use to a war in the water. He carries the loop and harness as shown in the sketch, and waits the return of the rescue plane which catches him from the raft and hoists him to safety.

the property, it is known that unofficial operations have been made for it by a motion picture studio, and by a trailer manufacturer whose lease proposal might carry some influence on the process that his use of the facilities will aid in reducing Southern California's critical housing shortage.

Confident that their bid will stand, however, are Col. John D. Price, president of Aviation Maintenance Corp., former chief of supply for the Air Force Mediterranean operations, and his corporate associates Lt. Col. August C. Brewster, former chief of maintenance of the Sea Swallow Army Air Base, Maj. William R. Howard, TIL former assistant air inspector; Maj. Charles M. Packer, formerly in charge of field operations at San Bernardino, and Eugene Finch, formerly in charge of San Bernardino aircraft shops.

**Plans Outlined**—They plan a complete range of modification and

overhaul services for both airlines and individual airplane owners, and probably will handle some Government modification of surplus war planes. They will hire between 300 and 400 workers immediately.

The lease will run for a period of four and one-half years, and probably will include the corporation's agreement to assume the purchase of depot shares valued at \$100,000.

## Douglas El Segundo Plant To be Taken Over By CAA

Douglas Aircraft's government-owned El Segundo, Calif., engineering plant has been rented to the Civil Aeronautics Administration for \$54,018 annually.

The structure this summer will become headquarters for the CAA, with repair shops now located at Santa Monica. The Douglas El Segundo engineering staff will be moved to the company's home plant at Santa Monica.

## AVIATION CALENDAR

- March 10—**Aviation**—National Aviation Day, 1944.
- March 11—**Aviation**—National Aviation Day, 1944.
- March 12—**Aviation**—National Aviation Day, 1944.
- March 13—**Aviation**—National Aviation Day, 1944.
- March 14—**Aviation**—National Aviation Day, 1944.
- March 15—**Aviation**—National Aviation Day, 1944.
- March 16—**Aviation**—National Aviation Day, 1944.
- March 17—**Aviation**—National Aviation Day, 1944.
- March 18—**Aviation**—National Aviation Day, 1944.
- March 19—**Aviation**—National Aviation Day, 1944.
- March 20—**Aviation**—National Aviation Day, 1944.
- March 21—**Aviation**—National Aviation Day, 1944.
- March 22—**Aviation**—National Aviation Day, 1944.
- March 23—**Aviation**—National Aviation Day, 1944.
- March 24—**Aviation**—National Aviation Day, 1944.
- March 25—**Aviation**—National Aviation Day, 1944.
- March 26—**Aviation**—National Aviation Day, 1944.
- March 27—**Aviation**—National Aviation Day, 1944.
- March 28—**Aviation**—National Aviation Day, 1944.
- March 29—**Aviation**—National Aviation Day, 1944.
- March 30—**Aviation**—National Aviation Day, 1944.

AAF Reorganization: Chart shows new Army Air Forces organizational set-up as announced last week by Gen. Spaatz.



## High School Students Enlisted In Missouri Airmarking Program

Senior classes are urged to provide flying aids as commemorative gifts; more than 100 communities expected to be marked before May 15 as result.

By ALEXANDER McUREY

Instead of the sundials, pictures, drinking fountains, etc. usually left as commemorative gifts, the graduating classes of many Missouri high schools this spring will provide class memorials in the form of airmarkers for their communities.

More than 100 Missouri communities are expected to be airmarked by senior high school classes before May 15, as result of efforts at the Missouri State Department of Resources and Development.

**Coordinated By Frykeff**—The campaign, conducted by Eugene V. Frykeff, head of the aviation division of the department, and Leo C. Hansen, state aviation engineer, has enlisted the efforts of the Missouri high school seniors by letters to their class presidents and school superintendents. It was suggested that the marker be placed on the north of the school if possible.

The "aif" the project is the class, the following reasons for airmarking:

1. It would teach civic cooperation.  
2. It would create something fine for the community.  
3. It would advertise the town to tourists.

4. Sloganeering towns would know the town is alert.

5. The towns with airmarked buildings will be shown on a map to be given wide distribution by the State Department of Resources and Development.

6. An aerial photograph of the airmarker will be taken.

7. It will aid in cutting down accidents in flying.

8. It will be a lasting memorial to the class.

9. It will show that youth is interested in aviation.

10. It will help keep Missouri, for the project is state-wide.

Hansen suggested every class agreeing to undertake the project with an airmarking kit containing



AERONCA FAMILY PLANE?

Peter Ahrens, Detroit aeronautical engineer and consultant to Aerovox Aircraft Corp., Middlefield, Ohio, has patented on a 4-5-place family-type plane design shown in three-view drawings here. The tripartite retractable landing gear design appears to be powered by twin pulser gas turbines driving propellers. Contours of the nose resemble closely the contours of the nose section of sketches of the proposed Aerovox Eagle family plane. Patent application was filed Aug. 2, 1945.

complete instructions, a package of cardboard pieces forming parts of letters of CAA-approved size (10 ft high) spelling out the name of the town, and other necessary letters, numbers and arrows to give latitude and longitude in degrees and minutes, an arrow pointing to true north and a second arrow pointing to the nearest airport, with the number of miles to it.

The students pass the letters together on the gymnasium floor then carry each letter to roof. After thinking about the letter, and removing it they fill in the outline with yellow or orange street-marking paint. In even the roof is weather color than black, they outline with letter, numeral and arrow with black asphalt paint in a 1/2-in border.

**Extra Club Aid Suggested**—It was suggested that local civic organizations might contribute out of paint and brushes, and that the girls of the class might provide coffee and sandwiches the day the work was

being carried on.

The class president was asked to send in a report on completion of the work to Missouri. Cooperation of civic clubs in the project was asked in other letters.

Frykeff and Hansen say the biggest advantage of the program is that the most hearty response has come from smaller communities where airmarkers will be of the greatest benefit to private flyers. By graduation time this spring they hope to see Missouri the best airmarked state in the country.

## CAA Officials Urge More 'Gripe Sessions'

An interest in local "gripe sessions" for private flyers and airport operators is expected to be one outcome of the recent conference of eight CAA regional private flying specialists with Administrator T. P. Wright and his Washington staff.

Following reports of William H. Berry, Ft. Worth (Region 1), on account of the recent forum held in his region, it was recommended that additional localised meetings to sound public opinion on needs of private flying be held in the other regions.

**Other Suggestions Listed**—Other recommendations by the specialists:

- Use of low-power, short-range, inexpensive radio transmitters at small airports, enabling the operator to increase safety of operations, and facilitating publishing of weather information for pilots.
- Installation of a distinctive, inexpensive flasher light signal, at

## New Procedure Set

All private pilot flight operations will be authorized to some student pilot certificate in case of distribution of form can be made, William Moore, chief of CAA general aviation resources, last week. The change is expected to be in effect by April 1.

The new procedure requires the last direct primary contact between CAA officials and the applicant for a private pilot's license, and follows a recent recommendation of the CAA Advisory Committee on Non-scheduled Flying (Advisory News, Feb. 23). Under the new plan, the flight examiner is authorized to issue the student permit to any applicant who presents an application, plus a properly endorsed medical examination form filled out by any licensed physician or medical practitioner is physically qualified to fly.

small airports, which can be seen in the daytime, to guide pilots to fields (CAA will be studied further by CAA headquarters).

**Preparation of additional CAA publications for the private flyer, including a publication pointing out local flying hazards in various sections of the United States, a booklet on permission and operation of airports, and a booklet on additional uses of the airplane by individuals and operators.**

Administrator Wright told the group that full growth of private flying was dependent on creation of

more airports, better phones, simpler regulations, and better aviation training.

**Other Topics Discussed**—Other subjects included: Limiting the scope of the private pilot license operations by place restrictions of the charges for service made by these distributors and dealers; uniformity in sales and service; equal treatment of private and scheduled planes by traffic controllers, and aviation training for veterans.

John H. Geiss, assistant to Administrator Wright, in charge of personal flying development, conducted the sessions. Other specialists in addition to Berry, were: Richard Boyls, New York (Region 1); Carl W. Clifford, Atlanta (Region 2); Charles C. Cox, Jr., Chicago (Region 3); Lester B. Lillard, Kansas City (Region 4); Merrill E. Bourne, Santa Monica, Calif. (Region 4); Wiley R. Wright, Seattle (Region 7); and Virgil D. Stone, Anchorage, Alaska (Region 8).

## Surplus PQ-14 Gets First CAA Flight Test

First CAA flight tests on a surplus Cessna PQ-14, conducted at Bush Field, Asperger, Okla., showed that the radio-controlled target plane would require some elevator modifications before it could be certificated as a one-place plane for civilian use but it is expected that the plane eventually will be certificated, subject to modifications, as an approved type.

State War Assets Corp. has given

## Gas Refunds May Be Overlooked

Many private flyers, it is believed, are failing to obtain refunds on state motor fuel taxes paid on gasoline used in planes. Registered Travel Service, Inc., the private flyer's "New York concern" into the following tax refunds which may be obtained from various states, if the flyer submits his receipts for gasoline purchases with his refund claims:

Alabama, 4; Connecticut, 3; Colorado, 4; Connecticut, 3; Delaware, 4; Illinois, 4; Indiana, 4; Iowa, 3; Maryland, 4; Massachusetts, 3; Minnesota, 4; Missouri, 3; Montana, 3; Nevada, 4; New Hampshire, 3; New Jersey, 3; New York, 4; Texas, 4; Washington, 3; Wisconsin, 4; District of Columbia, 3.

**Other Arrangements**—New Mexico will refund on an average amount of 100 gal. (50) if purchased in lots of 50 gal. or more at one time, and if claim is submitted within four months from date of purchase.

Virginia refunds 5 cents per gal. if fuel is purchased in the state and used outside, or 3 cents if fuel is purchased and used in the state. West Virginia refunds are paid only on quantities of 20 gal. or more.

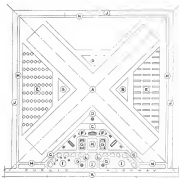
**Will Provide Forms**—When Registered Travel Service (AIRBORNE News Feb. 4) begins operations it expects to provide its clients with necessary forms and directions to apply for refunds from the various states listed.



## NEW CONTINENTAL ADJUSTABLE-PITCH PROP:

New two-piece hydraulic-control "Stigsoner" propeller, developed by Continental Aviation & Engineering Corp., shows on a 42-hp. Globe Swift. On the Swift, Continental says, the new prop cuts fuel consumption nearly 20 percent, increases cruise rate of climb more than 37 percent, and permits extreme fuel

savings. The prop is expected to be standard equipment on revised lightplanes. Continuity drawing shows flexible expander rings, actuated by oil from engine oil system and controlled by four-way valve from instrument panel. Sliding collar between rings controls blade-pitch through linkage.



#### CAA AIRPORT PLAN:

Proposed layout for a personal plane airfield, taken from the new CAA publication, *Airport Buildings*, shows how plane storage areas would be set aside from other operations. Symbols are: (A) landing area, (B) plane parking, (C) apron, (D) plane service station, (E) terminal plane storage, (F) administrative buildings (including operations, sales and maintenance), (G) revenue buildings (restaurant, overnight hotel, auto service station, etc.), (H) car parking, (I) parking area, (J) perimeter planting, (K) road area, (L) entrance road, (M) perimeter road. The booklet may be obtained by community groups interested in starting an airfield by sending \$5 each to the Superintendent of Documents, Government Printing Office, Washington, D. C.

either larger flights better protection for CAA flight tests, a probably will be a matter of months before the target plans, tests and modifications are completed.

**Plus Intruding Fencibles**—The plan has been regarded as an interesting possibility for a fast one-piece personal plane since it has essentially retractable triaxle landing gear, a cruising speed of 163 mph, 400-mile range and 17-000-ft. ceiling.

While no reports have been received of sales of single PQ-10s in the country, seven of them have been sold in Manila. The AAF reports that approximately 2,800 of them were built, divided approximately equally between the Army and the Navy.

The CAA has approved the certification as a one-piece plane of an earlier Colson "cable-controlled

plane, the PQ-8 which has dual landing gear and a 90-hp Franklin engine and which is in surplus.

#### National Flying Farmers To Convene in August

Aug. 1-2 has been set as the date for the first annual convention of the National Flying Farmers Association, it was announced last week. More than 500 farmers who are considering aviation and agriculture are expected to attend the session which will be held at Oklahoma A & B Hotel, Stillwater, Okla., at the same time as the Oklahoma Flying Farmers conference and the college's annual Farm and Home Week.

Berbert Graham, national executive secretary and some 34 lightplane manufacturers will be expected to display their latest models

#### License Change Due

Changes in private pilot training requirements are expected to be made effective shortly by CAA Administrator T. P. Wright on recommendation of his eight regional private flying specialists.

It is proposed that only five of the ten hours of dual instruction required for a private pilot be required from a rated instructor, and that not less than four of these five hours be after the first solo. This would make it possible for the student pilot to get five hours of his dual time from his friends who are rated pilots but still leave the matter of judgment as to his ability to solo, and his ability after solo, to a rated instructor.

#### State Aero Association Projected By Coloradan

Organization of a Colorado Aeronautics Association is being undertaken by Robert Donner, temporary chairman, P.O. Box 137, Colorado Springs, he has announced.

The association is proposed as a non-profit organization to promote safe, non-scheduled private and commercial flying, foster a state-wide system of airports, airways and traffic control coordinated with national plans, originate state laws on aviation facts for state aviation and operator utilization of state aviation legislation, encourage local activities as transportation, and oppose excessive regulation of unscheduled commercial flying by federal authorities.

#### AAF Veteran Planning

##### Baltimore Seaplane Base

Application to establish a seaplane base for private flying and charter operations, within five miles of the heart of Baltimore, has been filed by James B. McDermott, Jr. former AAF fighter pilot at Catonsville, Md. He has leased a 200 x 200-ft. tract on the south shore of the Middle Branch, two blocks from a Baltimore streetcar line and proposes to build a center block hangar connected to the water by a wooden ramp.

In a hangar he has space for three runways of 3,000 to 4,500 ft. and if necessary, run his airplanes through the door of the Harvermont bridge to go almost unimpeded "runway" on the Patuxent River.



Pan American World Airways, veteran ambassador of trade, now makes one market place of the world—bringing the world and wants of many nations together to create sales and prosperity... with Lockheed Conquestones powered by Wright Cyclones

**WRIGHT**

*Aircraft Engines*

CERTIFIED BY WRIGHT





[illegible]

Compilation released by Securities and Exchange Commission shows liquidation was broad in aviation group and airlines also were widely sold, apparently at advantageous market levels.

J. M. Laddan and his wife disposed of a total of 3,583 shares of Consolidated Vultee common, retaining between them 5,176 shares.

of Aviation Corp. common, releasing 45,548. Emanuel sold 983 shares of common releasing 44,300 directly and 10,083 shares indirectly.

Advantageous In Paid — The power of aspects of air transportation have caused previous stock dividends or sales to work out

Koppers, after its proposed split, will have 3,400,000 shares issued in place of its 800,000 which has ranged from 80 to 120% this year.

Component and chemical	Index	Relative abundance
Unidentified hydrocarbon	100	100.00
Acetylene C <sub>2</sub> H <sub>2</sub>	143	100
Acetylene C <sub>2</sub> H <sub>2</sub>	150	14.00
Acetylene C <sub>2</sub> H <sub>2</sub>	167	1.00
Acetylene C <sub>2</sub> H <sub>2</sub>	184	0.00
Acetylene C <sub>2</sub> H <sub>2</sub>	201	0.00
Acetylene C <sub>2</sub> H <sub>2</sub>	218	0.00
Acetylene C <sub>2</sub> H <sub>2</sub>	235	0.00
Acetylene C <sub>2</sub> H <sub>2</sub>	252	0.00
Acetylene C <sub>2</sub> H <sub>2</sub>	269	0.00
Acetylene C <sub>2</sub> H <sub>2</sub>	286	0.00
Acetylene C <sub>2</sub> H <sub>2</sub>	303	0.00
Acetylene C <sub>2</sub> H <sub>2</sub>	320	0.00
Acetylene C <sub>2</sub> H <sub>2</sub>	337	0.00
Acetylene C <sub>2</sub> H <sub>2</sub>	354	0.00
Acetylene C <sub>2</sub> H <sub>2</sub>	371	0.00
Acetylene C <sub>2</sub> H <sub>2</sub>	388	0.00
Acetylene C <sub>2</sub> H <sub>2</sub>	405	0.00
Acetylene C <sub>2</sub> H <sub>2</sub>	422	0.00
Acetylene C <sub>2</sub> H <sub>2</sub>	439	0.00
Acetylene C <sub>2</sub> H <sub>2</sub>	456	0.00
Acetylene C <sub>2</sub> H <sub>2</sub>	473	0.00
Acetylene C <sub>2</sub> H <sub>2</sub>	490	0.00
Acetylene C <sub>2</sub> H <sub>2</sub>	507	0.00
Acetylene C <sub>2</sub> H <sub>2</sub>	524	0.00
Acetylene C <sub>2</sub> H <sub>2</sub>	541	0.00
Acetylene C <sub>2</sub> H <sub>2</sub>	558	0.00
Acetylene C <sub>2</sub> H <sub>2</sub>	575	0.00
Acetylene C <sub>2</sub> H <sub>2</sub>	592	0.00
Acetylene C <sub>2</sub> H <sub>2</sub>	609	0.00
Acetylene C <sub>2</sub> H <sub>2</sub>	626	0.00
Acetylene C <sub>2</sub> H <sub>2</sub>	643	0.00
Acetylene C <sub>2</sub> H <sub>2</sub>	660	0.00
Acetylene C <sub>2</sub> H <sub>2</sub>	677	0.00
Acetylene C <sub>2</sub> H <sub>2</sub>	694	0.00
Acetylene C <sub>2</sub> H <sub>2</sub>	711	0.00
Acetylene C <sub>2</sub> H <sub>2</sub>	728	0.00
Acetylene C <sub>2</sub> H <sub>2</sub>	745	0.00
Acetylene C <sub>2</sub> H <sub>2</sub>	762	0.00
Acetylene C <sub>2</sub> H <sub>2</sub>	779	0.00
Acetylene C <sub>2</sub> H <sub>2</sub>	796	0.00
Acetylene C <sub>2</sub> H <sub>2</sub>	813	0.00
Acetylene C <sub>2</sub> H <sub>2</sub>	830	0.00
Acetylene C <sub>2</sub> H <sub>2</sub>	847	0.00
Acetylene C <sub>2</sub> H <sub>2</sub>	864	0.00
Acetylene C <sub>2</sub> H <sub>2</sub>	881	0.00
Acetylene C <sub>2</sub> H <sub>2</sub>	898	0.00
Acetylene C <sub>2</sub> H <sub>2</sub>	915	0.00
Acetylene C <sub>2</sub> H <sub>2</sub>	932	0.00
Acetylene C <sub>2</sub> H <sub>2</sub>	949	0.00
Acetylene C <sub>2</sub> H <sub>2</sub>	966	0.00
Acetylene C <sub>2</sub> H <sub>2</sub>	983	0.00
Acetylene C <sub>2</sub> H <sub>2</sub>	1000	0.00

Significantly, L. H. Dwendloff Jr. bought 1,500 shares of Western Air Lines bringing his total holdings in his company to 14,400 shares.

MID-CONTIN

ENT PETROLEU

With the advent of war, the long-experienced Mobil-Crescent refinery soon developed D-X AVIATION OIL and became one of the leading suppliers to the United States and Allied Nations. Today, this superior lubricant is available to commercial aircraft owners. Its characteristics include maximum resistance to carbon, sludge and lacquer formation, maximum power performance. Its enduring film strength affords complete lubrication for fast-moving parts, and it performs under the widest of atmospheric temperature ranges. Suitable for large and small aircraft. Your inquiry invited.

## TULSA, OKLAHOMA

## PRODUCTION

# Efficient Use of Propellers Seen At Speed Well Into Sonic Realm

Leading American and British engineers say radical changes in design, including blade tip sweepback and two-speed engine reduction gearing, will make it possible.

Efficient use of propellers at speeds well into the sonic range is forecast by leading American and British engineers as the result of changes in design as needed in these new being effected on aircraft and powerplants.

The combination of blade tip sweepback, constant speed and two-speed engine reduction gearing assures maximum propeller efficiency at sonic speeds far in excess of those now operating.

**Propellers Will Be Cuts**—The use of co-axial and counter-rotating designs will reduce drag on high-power units as well as in actual thrust required by single units. Present indications are that hollowed blade construction will demonstrate solid steel, duralumin and wood.

John Stack, NACA supervisor of compressibility research, recently displayed examples of this new propeller design. He disclosed that whereas the conventional three-blade constant speed design now in wide use on commercial and military aircraft has an efficiency of 84 percent at 250 mph and only 80 percent at 350 mph, due to compressibility losses at tip and shock, a new model design by NACA researchers reveals an efficiency of 90 percent at 350 mph and 88 percent at 325 mph.

**Gain Is Important**—Importance of this gain can be appreciated readily by the fact that an improvement of only 1 percent in propeller efficiency will pay for the original cost of the airplane during its service life. This remarkable gain in efficiency is achieved by the use of a thin, wide blade extending directly into the root at only 18th percent thickness and mounting a large propeller. Speed tips with heavy sweepback produce efficiencies of more than 93 percent at even higher speeds.

**More Efficient At Low Speeds**—Propeller experts here revealed

that this form of propeller delivers more than three times as much power at subsonic speeds as the turbo-jet unit. Propeller designs now being tested are capable of delivering 3 lbs. of thrust for each horsepower of engine output at 300 mph, as compared to 1.5 lbs. of thrust for each horsepower delivered by the turbo-jet at the same speed.

L. G. Fairbank, chief engineer of Bristol Ltd., British propeller manufacturers, in a recent paper predicted continued usefulness of propellers well into the future as was research and the solution is problem posed by the introduction of the aircraft gas turbine. Pointing out that the gas turbine's cruising range is about 90 percent of its maximum (compared to about 50 percent on the piston engine), Fairbank revealed a general opinion that two-speed engine reduction gearing is a necessity in the near future.

**Air Flow Important**—On the subject of co-axial and counter-rotating designs, he indicated their importance to smooth air intake flow for "prop-jet" units and the value of their larger circumference as a control problem. Tests have shown no efficiency advantage in efficiency, in fact rather rather unit of a co-axial design.

Fairbank predicts an expanding future for the reverse-thrust propeller pointing out that increasingly "clean" design of modern transport planes will make some form of "barber" a necessity. Another useful field for reverse-thrust is in the carrier-deck fighter plane where "backing" can reduce "bumping" on the deck and landing degree.

**Blade Thick Preferable**—Although the necessity for thin blade sections (18 percent thickness and less) indicates the use of solid steel, the position of faster in such a design is acute and the belief



**Propeller Test**—Use of a helix (twist) or combination of two interlocking helices for a planned research answer to a propeller problem, which has not been solved mathematically, is a spontaneous research study at the Langley Field, Va., NACA laboratory. The helices are introduced in a cylinder filled with water (left) through which an electrical current is then passed. By measuring the voltages at different points about the helix, which represents the path taken by the blades of a propeller through the air, the researcher obtains a precise measurement of the pressure existing around the actual propeller.

steel, the problem of faster is such shows more promise. Another advantage of the helix is its adaptability to "flat blade" anti-vortex systems, a product of importance with anti-vortexing operating altitudes.

The inherently greater efficiency of the pusher installation is receiving serious study and this design has been awarded even more significance by the introduction of the "prop-jet" unit, which requires large, slow air entrance ducts in the low landing edge. The pusher design also would permit the installation of larger propellers, thereby making possible the use of round propeller shafts for greater strength. Such a pusher system, extending to the 18 percent blade thickness point, would combine great hub strength with maximum blade efficiency.

**Advantage Seen**—Fairbank believes that, based on present knowledge, the propeller will prove superior on designs using up to 6,000-hp. piston engines, operating at up to 48,000 ft. and flying at speeds of up to 550 mph. Whereas fighter types have now surpassed these conditions, he believes in joint



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**THE SKYPOWER PROPELLER brings higher output at greater fuel economy, in well as more fuel economy, in all common planes. How because for your flying.**



**SMALL PITCH-FLIP CONTROL**—on panel of the prop in low pitch angle for take-off and climb, high pitch angle for cruising.



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**SPECIAL SKYPOWER BLADES** are designed for high performance. Aerodynamic control system. Made adjustment in local expert blade for maximum performance.

out that it will be several years before scheduled airlines will demand more rigorous design conditions.

Both noted engineers point out the great benefits to be gained by mutual cooperation between supplier, government and airplane designers. Such problems as vibration, noise reduction, induction systems, control, strength and overall efficiencies are best solved by co-ordination of them three from the start in the design stage.

## Trans-sonic Speed Problem Outlined

Greatest problems now facing transonic designers is the question of aircraft able to get through the range of speed of Mach about 0.85 up to 0.98 mph. Wellwood E. Beall, engineering and sales vice-president of Boeing Aircraft Co., declares:

Everybody knows that "most of the rules which govern airflow at subsonic ranges of speed," he points out, and at speeds somewhat above that of sound, control, stability and even normal air flow are retained. But in the trans-sonic range "air flowing around aerodynamic shapes now in use suddenly changes its nature with resultant disruptive eddies, loss of lift, large increase in



**Canadian Lightplane**—The Noranda, tandem aircraft being built by Henry Arrango Ltd., Honey Creek, Ont., for personal or instruction use.

drag and loss of stability and control.

**■ Much Research Needed**—New rules governing airflow behavior at trans-sonic speeds must be found. Beall states and applied to shapes which will either meet the desiderata effects found in that speed range or be able to preserve it so that the effects have no time to build up to the danger point.

This will involve a tremendous amount of testing in wind tunnels and analysis of the consequent eddies. The work must be undertaken separately for every part of the aircraft—wing, tail surfaces, fuselage, etc. After that the separate results must be integrated.

Days, weeks, and possibly years will pass "Beall notes in the Boeing Magazine. But at some point in the investigation, testing and analysis the answer will have been found.

## Canadians Develop Device to Replace Oxygen Tanks

A machine to change liquid oxygen to oxygen gas during flight and so eliminate the deadweight of heavy steel cylinders of oxygen in bombers was unveiled late in 1944 by two University of Toronto scientists. It was announced at Toronto this week, after another wartime invention of the secret list.

The machine weighed only 130 lb. each and supplied the equivalent in oxygen of that carried formerly by 400- to 450-lb. steel cylinders. The invention is expected to have a particular application on passenger aircraft, eliminating the use of steel oxygen cylinders. Announcement of the invention was made in a paper read at the Engineering Institute Toronto, by Prof. Guyton Smith who with Paul F. R. Fry tested their apparatus in a BEAC Douglas-built Dakota flying across the Atlantic from Montreal in November 1944.

## New Lightplane Being Produced in Canada

A new two-passenger high-wing monoplane the Noranda, is being produced in Canada by Henry Arrango Ltd., Honey Creek, Ont. It has been fully approved by the Canadian Department of Transport for 75-, 85- and 95-hp engines and for dual seats and wheels.

Designed for personal or instruction use, it sells for \$2,800 (Canadian) with a 60-hp Continental engine, plus 4 percent sales tax. Standard equipment includes wheel undercarriage. It has a maximum speed of 110 mph, cruising speed of 95 mph, and cruising range of 500 miles. Takeoff speed is approximately 42 mph, stalling speed is 36 mph. It is reported to take off in 215 feet. Passengers are seated in tandem.

**■ Construction**—The Noranda has a cloth skin wing of wood with fabric covering. Fuselage is of steel tubing with fabric cover.

It is equipped with instrument, oil pressure, oil temperature, air speed, compass and altimeter instruments. Gross weight as wheels as it is built. It will carry two passengers and 95 lb. of baggage.

## Goodyear in Production On Farm Food Freezers

Reconversion of Goodyear Aircraft Corp. has taken an important step with production of the first farm freezer is being built under Goodyear's contract with Wilson Refrigeration, Inc. The new business bearing the trade name "Zeroseal" are being manufactured under a contract of about \$1,000,000.

The freezer is designed chiefly for small houses and other establishments requiring large food-freezing and storage capacities and will be produced in 10- and 20-cu. ft. sizes.

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Aviation Supply Corporation

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Yours sincerely,  
*L. G. Mason*  
President  
AVIATION SUPPLY CORPORATION



AVIATION SUPPLY CORPORATION  
10000 Woodward Avenue  
Akron, Ohio 44312



Aviation Supply Corporation - THE GENERAL TIRE & RUBBER CO. - AKRON, OHIO



**Future Plans?** Wellwood E. Beall, vice-president in charge of engineering and sales for Boeing Aircraft Co., and collaborator in the design of the Flying Fortress, the Superfortress and Stratofortress, says what may be the shape of the plane of the future. It's only a paper plane, but Beall sketches the three-high-speed aircraft of the future very resemble this big in some respects.



## HELICOPTERS—HOW SOON?

This Army XR-1 helicopter and its military successors, designed and produced by Kellett, are helping us prepare to produce advanced helicopters to fit the needs of commerce and military. Success plans of aircraft manufacturing companies equip us to understand their needs, and to prepare the helicopter's future confidently.

No longer is the helicopter's flight flexibility questioned. It is being demonstrated every day. Any well designed helicopter is completely at home flying forward, backward or sideways, taking off and landing vertically in open land or water space of tremendous size—hovering motionless within rifling distance of the ground. The new helicopter travels across country at speeds greater than your car can hold on an express highway.

The day may not be far away when helicopters, developed from present models, will perform many money-saving, time saving tasks. Aerial surveys and patrols, crop dusting, repair and relief missions, forest and petroleum exploration and the transportation of passengers or goods will afford countless opportunities to do the job better by helicopter.

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KELLETT AIRCRAFT CORPORATION, UPPER MERY, PA.

# KELLETT HELICOPTERS

## Salmon Stresses Need Of Lighter Jets, Better Fuel

Two most important factors which will extend the economical advantage of the airplane is the opinion of Ben T. Salmon, chief engineer of Ryan Aeronautical Co., on further refinement of the gas turbine engine and development of new super-fuels of high chemical energy is reliance to weight.

The two principal possibilities now to achieve to improve airplanes beyond what they are today from an economic standpoint are reduction of the installed powerplant weight and reduction of fuel requirements in pounds," he told the San Diego section of the Institute of Aeronautical Sciences.

**Cities Gas Turbine**—"The lighter powerplant weight is with us now in the form of the gas turbine, both in its jet propellers and propeller driven forms," he added. "Because this type of powerplant is still in the development stage, its present disadvantages of poorer thermal efficiency and higher fuel requirements will be overcome in the near future."

Salmon said that perhaps of even greater importance in the fact that the gas turbine will speed up almost any substance in a fluid which can be blown through a nozzle and which will burn in air.

## Speed Limitations

While speed is the ultimate range, his panel said, difficulties to achieve in the past, some observers believe the point of diminishing returns has been reached. They agree that supersonic speeds will be practical only in military craft where economy is of secondary importance.

The cost of speed, which remains exorbitant in the subsonic range, suddenly climbs to almost prohibitive proportions in the supersonic range, NACA engineers point out.

**Example Given**—Drawing the example of a combat jet, Kellett made at 30,000 ft. at cruising speed, 30 C. Bailey, of the Flight Research Division points out that about 30 standard drums of gasoline would be burned if the flight were made at 300 mph. Rate at a speed of 675 mph the fuel would require twice this quantity of fuel, although the speed would be less than two and one half times as fast.

## SPECIAL AIR SERVICES

CHARTER

NON-SCHEDULED

INTRASTATE

## Nine Uncertificated Operators Organize To Promote Business

Announce high safety and maintenance standards will be established to forestall criticism; joint cargo, packaging and rate policies are being considered.

Nine federally uncertificated cargo and passenger operators have organized the **Institute of Air Transportation, Inc.**, as a cooperative, non-profit organization. Regarders of the members varies from Lockheed Lancers to Douglas DC-4's totaling 70 planes at present with 30 more on order.

Being set up to forestall rising criticism of uncertificated operations and maintenance by some uncertificated carriers, the association's acting board chairman, Richard D. Samualson, announced that "For a maximum of safety, standards above the government's levels are being established and a network of inspection and maintenance points throughout the country will be operated."

**Physical Policies Proposed**—Physical policies regarding cargo routing, rates and packaging are being considered, and an educational program "to stimulate the use of air transportation," is being proposed.

Organized veterans to a great extent are the signatories and personnel of companies forming the Institute," Samualson said. "Aircraft released by the government and new planes and new shippers of headquarters from Long Beach Municipal Airport to Los Angeles Airport.

The company that month will receive 2000 gliders shipments from

profitably operated in these services."

**Charter Members Listed**—Charter members of the association, which has headquarters at 280 Fifth Avenue, New York City, are: American Air Express & Importing Co., Inc.; National Skyway Freight Corp.; Pacific Air Cargo Co., Inc.; Trans-Caribbean Air Cargo Kline, Inc.; Trans-Mexico Airlines, Inc.; U. S. Airlines, Inc.; Veterans' Air Express, Inc.; Veterans' Air Lines, Inc.; Wildcat Air Service, Inc.; Rochester, Chas. & Belmont, Inc. (laterally); C. & Smith, (insurance brokers).

Other developments in the non-scheduled, charter, and contract cargo and passenger field were:

**National Skyway Freight Corp.**, two-continent non-scheduled cargo carrier, signed a contract agreement return loads for three weekly Los Angeles-New York, out-flower flights. Return shipments of associated cargo, principally garments and furs, have been scheduled in the East with Gilbert Air Freight, shipping consolidators. Popularly identified as the "Flying Tiger Line," the company now operates nine planes and has shippers of headquarters from Long Beach Municipal Airport to Los Angeles Airport.

The company that month will receive 2000 gliders shipments from

Tempe, Fla., to Los Angeles to the extent of three plane loads weekly. Orders are awaiting for the movement of new orders and broad based, and the ending of the Santa Anita Park racing season probably will bring a series of shipments from that West Coast racing center to the eastern seaboard. Passenger charters include the movement of military personnel and the flying of United Auto Workers (UAW) delegates to their national convention at Atlantic City, N. J., and return after the convention. At the company's West Coast headquarters, Director Air Express, coordinator, has contracted for a weekly shipment of rapid freight to eastern ports. Experimental fruit shipments to eastern cities will be resumed this month.

**Northern Airlines**, which began two-weekly cargo flights between Seattle and Alaska in February, carried capacity cargo northbound every trip during its first month of operation, Arthur E. Johnson, president, reports. Last week, signifying for a second DC-3, the company is carrying 1,500 lbs. on each trip consist of meat, vegetables and some fruit. Stores report sell-outs shortly after arrival in Anchorage and Fairbanks. Southbound cargoes, largely furs, tanning and winter equipment in need of repairs, have been growing steadily and new average about 1,000 lbs. Through rate is 40 cents a ton-mile.

**West Virginia Air Express**, Baltimore Airport, dispatches a plane three times weekly with fresh seafood to Seattle, W. Va., as a result of an order of H. L. Sealer, manager of Freshley Municipal Airport, who contracted with a Baltimore seafood firm for \$80 a lb. of fish in early February and sent a plane to Baltimore to pick it up. As a result of the special advertising, local purchases (and the second harvest of the seafood) the cargo was sold out in a few hours. The plane now makes each trip loaded with 2,000 lbs. of fish,ysters and lobsters. Service will be extended soon to



WESTERN OPERATOR'S FLEET:

Three of the Boeing DT-D's operated by Zenarchy Airlines in the Northwest which recently were taken

over by Empire Airlines. Both firms are headed by Bert Zimontsky.

Charlestown, Bluefield and Princeton, all in an isolated mountainous section of the state. A Nordair Aeronaut is using a DC-3 will be bought soon. Emergency passengers are carried.

**✈ Air Cargo Transport Corp.** last three C-47's when her deliveries in Newark began, but operations will not be curtailed. Seven other craft remain in service and two more will be purchased soon. If Roy Perrelli, president, announces, Company is considering an arrangement to fly ACT planes into Havana for Express Aero Inter-Americas S. A.

**✈ Robinson Airlines, Inc., N. Y.** in February carried 346 passengers, about 246 in the longer month of January. The company's airline, operating non-scheduled service out of Utica to New York City, completed eleven months of operations late in February. A new service between Utica and Buffalo, which started Jan. 31, brought new business. Two-engine C-47s, carrying four passengers, are being used.

**✈ Nationwide Air Transport Service, Inc., Municipal Airport, Ocala, Fla.** has been equipped with western state, capitalization of \$150,000, to operate a non-scheduled passenger and freight service. Four former service pilots and a Western businessman hold all of the company's stock. Robert C. Henshaw, spokesman for the company, was a lieutenant commander in the Navy. Company owns a converted C-47 and has applied for two more.

**✈ Empire Air Lines, of Larchmont, N.Y.** has taken over the intrastate scheduled passenger operations and three Boeing B3-D airplanes of Zimmers Airline, which company is absorbed. Bert Zimmerman, president of both companies, acquired Zimmers Airline in 1945 to operate intrastate and establish traffic data on which to base an application to CAB for an interstate system in the region. He then organized Empire Air Lines, which added application for certificate to serve 25 communities in Maine, Oregon, Washington, and Nevada. Hearings were held in San Francisco in November and in July, 1946. The company reported favorably.

**✈ Reported By Associated Press.** After oral argument at Washington, October, 1946, Public Counsel Robert Hinkins supported the company's application and added a plea for extension of the Zimmerman's license to San Francisco, Salt Lake, Idaho Falls, Portland, Seattle,



Utah Airlines Office building stands beside the first 16-place Lockheed transport delivered to Challenger Airlines, Salt Lake City, are Challenger President George Mueller, Jr., Chief Pilot Floyd Byrne and Treasurer William W. Eastman, Jr.

## Intrastate Air Service Inaugurated in Utah

Challenger Air Lines, based at Salt Lake City, also will serve Albuquerque and Phoenix with Lockheed.

Utah's first intrastate air service—Challenger Air Lines, Salt Lake City—began survey operations March 1 with the first of a fleet of Lockheed D11-B 16-place transports.

Besides linking nine Utah communities, Challenger plans non-scheduled intrastate service south to Albuquerque, N. Mex., and Phoenix, Ariz. There now is no direct rail or air connection between Salt Lake and these other two state capitals.

**✈ Routes Listed.**—Scheduled intrastate routes to be served by the new line are:  
 ✈ North from Salt Lake City to Ogden, Brigham City and Logan.  
 ✈ South from Salt Lake City to Panguitch, Delta, Haysfield, Milford, Orderville and St. George.

The non-scheduled intrastate operations will be:  
 ✈ South from Salt Lake City to Vernal and Panguitch, Grand Junction and Durango, Colo. and Albuquerque.

✈ North from Salt Lake City, via the northern Utah points to Flagstaff, Phoenix, and Phoenix, Ariz.

**✈ Offices Listed.**—Offices of the line are: George W. Snyder, Jr., of Salt Lake City, president, Lowell M.

Burrell, of New York City, vice-president, Merrill Matheson of New York City, vice-president, Douglas A. Bessy, of Reno, secretary, and William W. Eastman, Jr., of Burbank, treasurer. The same men also act as the board of directors.

Snyder formerly a flying school and charter operator, was operations chief of a Beechcraft operation with the Western Technical Training Command during the war. Eastman also an Army pilot, was with Consolidated as a test pilot.

**✈ Miles Will Be Low.**—Challenger at projecting a comfortable passenger rate. On the run to Albuquerque and Phoenix the will make the fare comparable to train costs, but will cut travel time from 24-48 hours to less than five hours.

Capitalized at \$250,000, as a Nevada Corporation, the line is completely financed under the Claude Rouse Lighter Corp., New York City.

## Lodestar Prices Revised

New prices on simple C-61 Lockheed Lodestar transports range from \$10,000 to \$18,000 instead of from \$12,500 to \$16,800 as previously reported. Price range for passenger version is from \$13,800 to \$19,000. All passenger models are priced at \$12,500, and all freight types at \$19,000.

## Private Pilots Carry Mail

Pilots of the Richmond, Idaho, Flying Club dropped mail by plane to isolated ranches in snowbound Lincoln County recently when blizzards brought RFD mail to a standstill.

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Consulting references and dependability have made Eimac tubes first choice of leading electronic equipment manufacturers.

FOLLOW THE LEADERS TO



## Paul H. Barbank Named UAL Cargo Sales Head

Paul H. Barbank (left) has been named manager of cargo sales for United Air Lines in line with the adaptation of air cargo sales and operations across into the traffic-



sales department. Barbank was formerly development manager for the air cargo department, Mr. George Kuhn (right) has become regional medical director for United at Chicago. Robert H. Buckle, who served as personal pilot for Lord Louis Mountbatten in India, has returned to United as a flight captain at San Francisco.

R. O. Smith (photo), PCA superintendent of maintenance and overhaul, has been appointed assistant to the executive vice president of the airline department.

Robert W. Fleming has joined the Washington public relations staff of Pan American Airways, following his release from the Navy. Jan goes to leaving the service. Fleming was a special agent to the undersecretary of the Navy. He will be associated with William J. McDevry, assistant vice-president of Pan Am.

Donald S. Galt has been appointed director of publicity for National Airlines. Mr. Galt will have charge of the entire airline system with headquarters in New York. Recently a newspaperman, Galt has served as manager of public relations for Wright Aeronautical Corp. Curtiss-Wright Corp. and Brewster Aeronautical Corp.

James M. Cox, Jr., vice president of the James M. Cox, chairman of newspapers and radio stations, has been elected to the board of directors of Eastern Air Lines, Inc. Cox has been serving with NATA.

Charles DeWitt, formerly personnel manager, has been promoted to manager of employment for PCA and will have full responsibility for employee recruitment and personnel records. DeWitt formerly was with Glens E. Martin Co., an assistant to the personnel director.

Thomas W. Marshall, Jr., former district traffic manager at Butte, Mont., has returned from military service and will assume his duties as Northwest Airlines district traffic manager at Spokane. With R. D. Bowdler will assume there is assistant district traffic manager.

A. H. Thomas is the new general manager of the plant operated by the Justice Aircraft Engine, Division of Republic Industries, Inc. in Port Huron, Pa., succeeding Harold B. Kretz. Kenneth N. Thompson has resigned as assistant manager of the division.

J. B. Lewis, formerly superintendent of military operations for Eastern Airlines, has been appointed manager of operations of New York for the domestic division. Lewis joined Eastern Airlines in 1939.

Walter B. Johnson, Jr., has been named eastern regional cargo traffic manager for American replacing Robert W. Winters, who has been appointed general air freight agent. Johnson has been a military leave with the Marine Corps.

Marshall H. Jones (left), recently discharged from the Navy, has been named assistant to E. L. Anderson, superintendent of engineering for Chicago & Southern Air Lines. Joe W. Coleman, Jr. (right) has joined



Chicago & Southern as assistant to Thomas H. Miller, director of research. Prior to joining the AAF, Coleman was with the Civil Aeronautics Board in Washington as assistant to the secretary of the Board.



## CAA APPOINTMENTS

Donald H. Harvey (left) is the new personnel officer for the Civil Aeronautics Administration. Mr. Joseph Herman Gentel, former assistant administrator for aviation training, succeeding Bruce Wilson who has resigned to join TWA, and William R. Kline (right) has been named assistant administrator for federal aircraft safety. (Aviation News, March 11)

Edwin L. Zee (photo) has been appointed chief engineer of the



Merchandise Department by the Board of Merchandise.

Walter W. Rice, who has served with Eastern Air Lines for more than 30 years, recently was appointed northern division representative. Robert W. Smith has been named Eastern Air Lines representative for Boston. He was formerly assistant chief agent at LaGuardia Airport.

Harold G. Johnson, former commander of the Western Technical Training Command, has been named new aviation director for the state of Colorado. The new post has just been created by the legislature in a special session.

R. H. Padden, former industrial relations manager of the Buffalo plants of Curtiss-Wright Corp. has been appointed laboratory representative of the Civil Aeronautics Laboratory, recently donated to the university by the Curtiss-Wright Aircraft Division.

Rita G. Erik H. Nelson has retired from the Army to become technical adviser to Swedish International Airlines. A member of the Army staff the World War II aircraft included all maintenance arrangements for the first B-24 squadron in India and China.

## TRANSPORT

## General Use of Radar By Airlines Considered Still 2-3 Years Away

Experts say public is misled as to its current commercial adaptability, see much development necessary before it can be applied safely and successfully.

By MERLIN MUCKEL

The war fruits of radar have led to a public misconception of its immediate adaptability for commercial aviation use, in the opinion of specialists in the field, and another two to three years will elapse before it can be installed successfully for airline traffic control and safety applications.

The question why this war-born device is not in use on the airways is being asked more and more frequently at airline officials by passengers outside the industry. The best answer, according to the Air Transport Association, is simply that radar has not been perfected for commercial use.

ATA Undersecretary The commercial operators are intensely interested in radar development but the program has been geared to the military. One of the best evidences that it still is primarily a military function, but in the hands of the War Department intends to spend several million dollars on radar and all-weather flying studies during the coming fiscal year.

ATA, CAA, GALT and some individual airlines are making radar tests. Among them is American, which for nearly a month has been flying a C-47 fitted with AFB-16 radar equipment. The ship is to be brought to Washington soon for experimental flights with CAA and GALT observers.

Definite handicaps—Greater reliance of this equipment, weighing 175 lb., is said to be its detection of thunderstorms. Range is about 160 miles under ideal conditions, with a normal maximum of half that distance.

Plane radar, which merely detects a shadow or other image features of the terrain, has not reached the point where it can pick out mountain peaks out of a range, for example, and ATA operations officials feel that it has not been developed

to the extent that general installation in a safety device would be practical. Such a step would be viewed with more favor if it were not for the fact that accidents in aircraft in flight are usually a combination of many factors, any of which radar might not perceive.

Ground the Eventual—To support traffic control, the consensus is that ground radar to monitor plane movements will be the eventual solution, but not until a method is devised to obtain a positive warning return from aircraft whereby they can be identified. Furthermore, no present-day radar scope gives the three essentials of altitude, range and bearing, or azimuth. Those that show altitude and range do not show azimuth, and a two-dimensional picture is the best obtainable so a single scope.

True was satisfactory in military use, where bombers and fighters followed a set, preordained flight pattern. But for commercial use, the system must be simplified and made adaptable. A method must be pro-

vided for identification of aircraft craft.

Two possibilities are being studied in this connection, involving use of color or code letter combinations on the scope to identify the plane as well as give its location.

Confidence Crisis—Some indication of the work yet to be done may be gained from last month's conference called by the AAF (Aviation News, Feb. 11) in discussing all-weather flying. Future manufacturers must incorporate into the equipment of the aircraft what while marked progress had been made, more experience was necessary and no single system was yet ready for official endorsement.

## National Criticized In Tatt CAB Order

"With" resolution changed in ruling that it must drop control of Caribbean-Atlantic Airlines.

Sharply rebuking National Airlines for "wildly and knowingly" violating the Civil Aeronautics Act, and indirectly warning other carriers against similar efforts, CAB has ordered National to drop half of all control over Caribbean-Atlantic Airlines, Puerto Rican carrier.

The fairly-winded opinion also disapproved an agreement providing the use of National's personnel and equipment in Caribbean's operations.

Stark Deal Closed—The Board declared "the conclusion is inescapable" that National has held the power to control Caribbean since



CARGO CONVERSION FOR AMERICAN:

Interior of the first C-54 converted at the Glenn E. Martin plant for air cargo use. It was delivered to American Airlines.

May 13, 1949, when 33,200 shares, or more than 80 percent of the latter stock, was turned over to the U. S. owner in return for future delivery of a smaller number of National shares.

Further, the Board continued, George T. Baker, National president, expressed willingness to take the risk of not obtaining prior approval of the transaction from the Board, even though such action might be deemed a violation of the Civil Aeronautics Act.

**Other Findings**—Aside from finding the control agreement illegal, CAB saw a lack of integration between the two carriers which "precludes approval of the acquisition or not creating a sound transportation system." The Board also revealed a disproportionate stock exchange, indicating that the Caribbean shares, especially those of Dennis Paveisen, Caribbean president, were over-valued in the transaction.

National was granted 60 days to comply with terms of the Board's order dissolving all relationship with Caribbean.

## Northwest Contracts For 10 Stratocruisers

Because first domestic carrier to enter gulf Boeing Gulf, American negotiating for eight

Northwest Airlines last week because the first domestic carrier to purchase Stratocruisers when it ordered a \$12,900,000 contract with Boeing Aircraft Co. for 18 of the long-range double-decker airplanes. The investment came as American Airlines was negotiating negotiations with Boeing for purchase of eight Stratocruisers (3600 271) costing \$10,000,000 for use in New York-London flights and other overseas service.

Completion of the American contract would bring total Stratocruiser purchases to 42, Pan American Airways previously having bought 20 and Swedish International Airlines (SILA), four.

**Other NWA Commitments**—Northwest's new plane commitments now aggregate \$22,900,000 including \$7,000,000 for 15 DC-4's delivery of the Stratocruisers early in 1947 would enable Northwest to establish seven-hour, coast-to-coast-stop flight service between New York and Los Angeles. The new Boeing also would be used on Northwest's proposed Northern Pacific route to the Orient, now awaiting CAB decision after hav-



Northwest Orders "Stratocruisers" Northwest Airlines will make its last for fastest coast-to-coast service early in 1947 when Boeing will deliver the first of ten Stratocruisers ordered last week. Besides seven-hour, coast-to-coast nonstop flights, Northwest intends to offer 24-hour Stratocruiser service from New York to Honolulu if CAB approves a proposed Northern Pacific route to the Orient, which has already received the favorable recommendation of Board members.

ing been recommended by Board members.

**Ready To Begin**—Craig Barker, president and general manager of Northwest, states that operations along the Alaska-Tokyo-Hongkong-Martin route would begin with DC-4's within a few months after the Board's approval with Stratocruisers added as they become available. Stratocruisers could fly New York-Hongkong in 35 hrs. 45 mins., and the same coast-bound route in 28½ hours compared with pre-war air time of 5½ days.

For Northwest's operations, the Stratocruiser's interior will be arranged to seat 70-105 passengers and will be capable of converting to sleep 18 persons in double berths and eight in single berths, besides 43 in seats. American would have a model providing berth space for 45 passengers or 60 daytime seats.

## Airlines Flew 94.26% Of Schedules in '45

Domestic airlines in 1945 carried new peak loads of passengers, mail and express and flew 94.26 percent of scheduled mileage, CAB reports.

The 28 carriers carried overseas mailer flew to 317,489,338, 98.87 percent above 1944 revenue passenger miles to 3,490,384,976, up 34.4 percent, and ton miles 25,286,928, up 27.63 percent, and express ton miles 22,335,000, up 38.67 percent.

**American Leads**—Average plane

load in 1945 was 17.33 passengers, 632.6 lbs. of mail and 213.1 lbs. of express. Passenger load factor dropped slightly from 89.58 percent in 1944 to 88.12 percent last year.

American flew the most revenue passenger miles, 600,219,511, followed by United, 500,874,698, and TWA, 518,028,695. Except for Hawaiian, United reported the highest revenue passenger load factor 93.60 percent.

## United Kingdom-Baltimore Service Dropped By BOAC

British Overseas Airways Corporation has five-year-old flying boat service between the United Kingdom and Baltimore last week after completion of 390 trans-Atlantic crossings.

The veteran Boeing 314-A, used in the service, will be used to step up Baltimore-Baltimore flights to three weekly Trans-Atlantic service exchanges between Montreal and Boston.

## UAL Speeds Up Service

United Air Lines cut almost four hours from its East Coast-Pacific Northwest service March 16 when it placed DC-4's on a daily round-trip between New York and Seattle-Tacoma. At the same time a daily DC-4 flight was added to the Los Angeles-Seattle and Los Angeles-San Francisco runs. Use of DC-4's also is expected to shave Pan American Airways' Miami-Havana and New Orleans-Buffalo schedules shortly.

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## Shelving of Multilateral Basis In U. S. Foreign Air Policy Seen

Replacement of Chicago conference's Five Freedoms philosophy by bilateral negotiations seem inevitable in light of Senate Commerce Committee hearings on Bermuda agreement.

Replacement of the Five Freedoms multilateral philosophy of the Chicago civil aviation conference with bilateral negotiations as the keystone of U. S. foreign air policy seems inevitable in the light of statements in recent Senate Commerce Committee hearings on the Bermuda Anglo-American air agreement.

Aside from the U. S. 80 major nations has ratified the Five Freedoms agreement, although there were several signatures at the conference and some smaller countries have signed it.

**Baker Inflects Switch.**—The switch to the bilateral approach was reflected after George Baker, chief of State Department's Office of Transport, stated that the plan of the Department is to proceed with bilateral negotiations with individual nations, and Sen Brewster (R-Me.) pointed to complications which might arise because of U. S. participation in both the Five Freedoms and Bermuda agreements.

Brewster pointed out hypothetically that if Russia were to sign the multilateral Five Freedoms agreement she could operate a New York-Detroit route at her own rates and frequencies, while U. S. car-

riers might be barred by arms fluid under the Bermuda agreement. Baker agreed with the Senator's conclusion that should such a condition arise, the U. S. must "have to reject the Five Freedoms agreement" formally and outright.

**Sen Senate Republican**—Senator Bailey (D, N.C.), chairman of the committee predicted that the Senate, in rejecting the Chicago convention, will strike out the Five Freedoms provisions.

Enforcing the State Department's plan to proceed along bilateral lines to obtain Five Freedoms rights for U. S. carriers in other countries, Baker prepared bilateral negotiations with the Netherlands, Norway, France, and "probably Brazil and China," in addition to Great Britain. He suggested that the U. S. negotiate some type of "partial agreement" with all countries through which U. S. planes will want to fly but which have no commerce of their own to extend to the U. S.

**Felony-making Change**—From opposition expressed at the hearings

it is apparent that the only provisions of the Chicago convention which will be cleared by the Senate are those authorizing the U. S. membership in a permanent international civil aviation organization and those establishing international air safety regulations.

Testimony brought out that up to the time of the Chicago conference the State Department had decided U. S. air policy, with the Civil Aeronautics Board playing the role of technical adviser. Baker said this relationship now has been reversed, with CAB acting as the policy-formulating agency and the State Department functioning as negotiator, with constant close liaison between the two.

## PAA Martinique Crash Blamed on Rough Water

Crash of PAA's 3-40 amphibian at Port de France, Martinique, last night probably was caused by the pilot's attempt to land the plane on excessively rough water, according to a CAB passenger report.

Four passengers were drowned and six passengers and the crew of four saved when the Evadair-Bon Jura flight landed on the reef at a high angle, capsized and sank. CAB noted that PAA ground personnel were not alert to scouring hazardous weather and failed to advise the flight that landing would be difficult.

## AIRPORT BOUND-UP

### CAL Leases Hangar At Denver Center

Centennial Air Lines has leased one of the two hangars at the modification center recently leased to the city of Denver by the Government and Western Air Lines in taking about half of the other. Centennial Air Lines is negotiating for lease of the half-hanger not occupied by Western.

The city pays \$1 a year for the whole facility. Centennial will pay the city about \$16,000 a year and Western \$20,000 a year.

Completion of the \$112,000 work will bring the city's income from the center to nearly \$150,000 yearly, virtually enough to operate Stapleton Field, the municipal airport.

**Plans Outlined**—Centennial, which operated the modification center during part of the war, will coordinate maintenance, repair, overhaul and conversion operations in its hangar and house its general office. Leases there. Western will use its space for maintenance and storage.

The city will supply hangar maintenance and heat, and clear working spaces on the apron around the hangars in winter.

Airport near close to the modification center. The city will lease the hangar to the city of Denver for \$1 a year. The city will lease the hangar to the city of Denver for \$1 a year.

**Outlook**—CAB's headquarters at the Denver Airport's construction is under way with federal transportation funds and a new structure of land.

plans for non-scheduled operations, approved by the city's Board of Port Commissioners. Public hearings will be held soon on a plan for scheduled air transport.

The airport is one of the San Francisco-Oakland air route major terminals and will be important in expansion of both passenger and freight air services. The site of the airport is owned by the city of Denver.

**Construction**—The city's airport terminal is under way. The city is planning to build a new terminal building with a new roof of steel and concrete. The new terminal building is being designed by the city's Board of Port Commissioners.

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## Lima Field Expansion

Peru reports that steps are being taken by the Peruvian Government to increase the airport at Lima 25 times its size to its present, to accommodate the Continental line which expects to put its service over a \$400,000 passenger terminal, four stages high and covering more than a city block, in near-completion.

**Construction**—A new administrative building, the first priority among improvements, is being planned. The building will be built on the site of the old terminal building, which was destroyed by fire in 1940. The new building will be built on the site of the old terminal building, which was destroyed by fire in 1940.

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## SHORTLINES

**American's overseas operation**—The American Overseas Airline Co. is planning to start operations in 1945. The airline will operate between New York and London, with stops in Europe.

**Chicago and Southern**—Chicago and Southern Air Lines is planning to start operations in 1945. The airline will operate between Chicago and Southern, with stops in the Midwest.

**Continental Airlines**—Continental Airlines is planning to start operations in 1945. The airline will operate between New York and London, with stops in Europe.

**Delta Airlines**—Delta Airlines is planning to start operations in 1945. The airline will operate between New York and London, with stops in Europe.

**Eastern Airlines**—Eastern Airlines is planning to start operations in 1945. The airline will operate between New York and London, with stops in Europe.

**Northwest Airlines**—Northwest Airlines is planning to start operations in 1945. The airline will operate between New York and London, with stops in Europe.

**Southwest Airlines**—Southwest Airlines is planning to start operations in 1945. The airline will operate between New York and London, with stops in Europe.

## Hearing Records Set

New records both in length of sessions and number of hearings were set at the recently concluded Middle Atlantic area hearings in Philadelphia. Representatives of 13 international airlines, 11 scheduled carriers and numerous individuals appeared, and the session was the longest in the history of the CAB's policy to hold the transportation committee drive for short-haul routes.

Requests of major airlines for additional land were in the industrial East were attended sharply in that session by officials of regional carriers who submitted that the new Douglas as the case as a touchstone of CAB's policy to hold the transportation committee drive for short-haul routes.



**Kansas City Airport Funder.** The proximity of two Kansas City airports has been a problem in the city. The proposed new Kansas City Municipal Airport, a five-acre site, is located near the existing Kansas City Municipal Airport. The new airport is planned to be built on the site of the old airport, which was destroyed by fire in 1940.



**Seattle-Tacoma Terminal Project.** Construction is under way on the new terminal building at the Seattle-Tacoma Airport. The new terminal building is planned to be built on the site of the old terminal building, which was destroyed by fire in 1940.





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